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**SG Rathava**

Ph.D. Scholar, Department of  
Extension Education, CPCA,  
SDAU, Sardarkrushinagar,  
Palanpur, Gujarat, India

**JV Chovatia**

Assistant professor, College of  
Agriculture, JAU, Porbandar,  
Gujarat, India

**KR Khunt**

Ph.D. Scholar, Department of  
Agricultural Extension, COA,  
Junagadh, Gujarat, India

## Extent of adoption of farmers about grain storage practices in Junagadh district

**SG Rathava, JV Chovatia and KR Khunt**

**Abstract**

Grain storage means a site or physical structure regularly used to store grain for producers or to store grain acquired from producers for resale. Storage is method of storing grain for future use for human consumption. Storage and maintenance of agricultural products are very important post-harvest activities and are usually carried out by farmers. A study was conducted in Junagadh district of Gujarat state. Out of these, four talukas have been selected for this study, and of each of taluka, three villages were selected randomly from each selected village, ten farmers were selected who are having grain storage practices. Thus, total 120 farmers have been selected for the study and were interviewed with a structural pre-tested interview schedule. The results of the study revealed that the majority 65.83 per cent of the respondents were medium level of adoption about grain storage practices. While, 20.00 and 14.17 per cent respondents were low and high level adoption about grain storage practices. It concluded that farmers must to adopt generally grain storage practices in selected area.

**Keywords:** Adoption, farmers, association, grain storage practices

**Introduction**

Grain storage is a physical structure regularly used to store grain for producers or to store grain acquired from producers for resale. Storage is method of storing grain for human consumption. Food is the symbol of life and prosperity and also food grain comprising of cereals, millets and pulses is the primary and staple food of majority of the population in India for fetching higher prices to the food grains in the market not only production of grains is important but storage of grains is very important. About 60-70% of food grains are stored by the farmers for their own consumption. The Indian farmers prefer to store grains in traditional ways using different types of storage structures made by locally available materials. The farmer has a significant role in producing and especially in storage are generally underestimated and undervalued and they are kept away from the reach of advanced improved grain storage technologies. Thus, the study was undertaken with the following specific objectives.

**Objectives**

- To study the personal profile characteristics of farmers
- To study the extent of adoption of grain storage practices by the farmers
- To study the association between selected characteristics of farmers and their adoption about grain storage practices

**Materials and Methodology**

The present study was conducted of Junagadh Agricultural University in Junagadh district of Gujarat state during 2018-19. Ex-post facto research design was followed for carrying out the study. The simple random sampling was used for selection of taluka, village, and respondent. Junagadh district is comprised of nine talukas and out of them 4 talukas was selected randomly for the study. *viz;* Junagadh, Manavadar, Visavadar and Keshod. Three villages were selected randomly from the each selected taluka. Thus, total 12 villages were selected for the study. A total of 120 farmers were randomly selected who were store grain for human consumption. Data were collected through personal interview schedule from these respondents. Question were asked regarding different types of practices about adoption of grain storage practices The data so collected were coded, classified and tabulated analyzed in order to make meaning conclusions.

**Corresponding Author:****SG Rathava**

Ph.D. Scholar, Department of  
Extension Education, CPCA,  
SDAU, Sardarkrushinagar,  
Palanpur, Gujarat, India

## Result and Discussion

### Personal Profile Characteristics of Farmers

#### 1. Age

The data regarding age of farmers is presented in Table 3. It is observed that of the majority 56.67 per cent of the farmers belonged to middle age group followed by old age 23.33 per cent and young age 20.00 per cent groups, respectively.

**Table 1:** Distribution of respondents according to their age (n=120)

S. No.	Category	Frequency	Percentage
1.	Young age (Up to 35 years)	24	20.00
2.	Middle age (36 to 50 years)	68	56.67
3.	Old age (Above 50 years)	28	23.33
Total		120	100.00

#### 2. Education

The data presented in the Table 2 indicated that majority 28.33 per cent of the farmers were educated up to secondary education followed by 23.33 per cent of them were having education up to higher secondary education. Further, it was noted that 18.33 per cent were educated up to primary education, 10.83 per cent were functionally literate. There was 17.50 per cent had college/post-graduation education and only 1.68 per cent of the respondents were illiterate.

**Table 2:** Distribution of respondents according to their education (n = 120)

S. No.	Level of education	Frequency	Percentage
1.	College/Post-graduation education	21	17.50
2.	Higher secondary education (XI to XII std.)	28	23.33
3.	Secondary education (VII to X std.)	34	28.33
4.	Primary education	22	18.33
5.	Functionally literate	13	10.83
6.	Illiterate	02	1.68
Total		120	100.00

#### 3. Experience of Grain Storage

The data from Table 3 revealed that the majority 60.00 per cent of the respondents had medium experience in grain storage followed by 20.83 per cent and 19.17 per cent of the respondents had high and low experience in grain storage, respectively. It can be concluded that majority of respondents 79.17 per cent were having medium to high experience in grain storage.

**Table 3:** Distribution of respondents according to their experience in grain storage (n=120)

S. No.	Category	Frequency	Percentage
1.	Low experience (Up to 5 years)	25	20.83
2.	Medium experience (6 to 10 years)	72	60.00
3.	High experience (Above 10 years)	23	19.17
Total		120	100.00

#### 4. Size of Land Holding

The data from Table 4 revealed that the majority 63.33 per cent of farmers were medium size of land holding (4.1 to 10 ha), followed by 13.33 per cent of farmers were semi medium size of land holding (2.01 to 4.00 ha), 11.67 per cent of the farmers were from small size of land holding (1.01 to 2.00 ha), 07.50 per cent of the farmers were from big size of land holding (above 10 ha) and 04.17 per cent of the marginal size of land holding (up to 1 ha).

**Table 4:** Distribution of the respondents according to their land holding (n=120)

S. No.	Land holding	Frequency	Percentage
1.	Big (Above 10 ha)	09	07.50
2.	Medium (4.01 to 10 ha)	76	63.33
3.	Semi medium (2.01 to 4 ha)	16	13.33
4.	Small (1.01 to 2 ha)	14	11.67
5.	Marginal (up to 1 ha)	05	04.17
Total		120	100.00

#### 5. Social Participation

The data presented in Table 5 clearly indicate that the majority 55.83 per cent of the respondents participate in one organization, while remaining 26.67, 11.67, and 5.83 per cent respondents had no participated, participation on more than one organization and office bearer, respectively.

**Table 5:** Distribution of respondents according to their social participation (n=120)

S. No.	Category	Frequency	Percentage
1.	No participation	32	26.67
2.	Participation in one organization	67	55.83
3.	Participation in more than one organization	14	11.67
4.	Office bearer	07	05.83
Total		120	100.00

#### 6. Quantity of Grain Stored

The data presented in Table 6 clearly indicate that the majority 70.83 per cent respondents were stored grains from 20.31 to 38.52 quintals as medium level of quantity. While, 16.67 per cent stored grains from up to 20.30 quintals as small level quantity and remaining 12.50 per cent of the respondents stored grain from above 38.52 quintals as large level of quantity.

**Table 6:** Distribution of respondents according to their quantity of grain stored (n=120)

S. No.	Quantity of grain stored	Frequency	Percentage
1.	Small level (up to 20.31 qtl.)	20	16.67
2.	Medium level (20.31 to 38.51 qtl.)	85	70.83
3.	Large level (Above 38.51 qtl.)	15	12.50
Total		120	100.00

Mean = 29.41

S.D. = 9.10

#### 7. Mass Media Exposure

The data presented in Table 7 revealed that majority 66.67 per cent of the respondents had medium level of mass media exposure, whereas 11.67 and 21.66 per cent of them had low and high level of mass media exposure, respectively.

**Table 7:** Distribution of respondents according to their mass media exposure (n=120)

S. No.	Category	Frequency	Percentage
1.	Low mass media exposure (Below 8.98 score)	14	11.67
2.	Medium mass media exposure (8.98 to 13.92 score)	80	66.67
3.	High mass media exposure (Above 13.92 score)	26	21.66
Total		120	100.00

Mean = 11.45, S.D. = 2.47

## 8. Scientific Orientation

The data presented in Table 8 indicate the majority 70.83 per cent of the respondents were found to have medium scientific orientation. On the other side 13.33 and 15.83 per cent respondents were having low and high scientific orientation, respectively.

**Table 8:** Distribution of respondents according to their scientific orientation

(n=120)			
S. No.	Category	Frequency	Percentage
1.	Low scientific orientation (Below 14.83 score)	16	13.33
2.	Medium scientific orientation (14.83 to 23.17 score)	85	70.84
3.	High scientific orientation (Above 23.17 score)	19	15.83
Total		120	100

Mean = 19.00

S.D. = 4.17

## 9. Risk Orientation

The data presented in Table 9 clearly indicated that the majority 63.33 per cent of respondents belonged to medium risk orientation group followed by 20.00 per cent and 16.67 per cent respondents were from high and low risk orientation, respectively.

**Table 9:** Distribution of respondents according to their risk orientation

(n=120)			
S. No.	Category	Frequency	Percentage
1.	Low risk orientation (Below 12.94 score)	20	16.67
2.	Medium risk orientation (12.94 to 22.78 score)	76	63.33
3.	High risk orientation (Above 22.78 score)	24	20.00
Total		120	100

Mean = 17.86

S.D. = 4.92

## Adoption of Grain Storage Practices by Farmers

The adoption process is a decision- making process goes through a number of mental stages before making a final decision to adopt an innovation. An attempt has been also made to find out extent of adoption of different grain storage practices by the farmers. On the basis of score obtained by the respondents, the respondents were classified into three categories.

**Table 10:** Distribution of respondents according to their adoption about grain storage practices

(n=120)			
S. No.	Category	Frequency	Per cent
1.	Low level of adoption (Below 48.31 score)	24	20.00
2.	Medium level of adoption (48.31 to 73.57 score)	79	65.83
3.	High level of adoption (Above 73.57 score)	17	14.17
Total		120	100.00

Mean = 60.94

S.D. = 12.63

The results presented in Table 10 indicate that the majority (65.83 per cent) of the respondents had medium level of

adoption, followed by 20.00 and 14.17 per cent of respondents had low and high level of adoption about grain storage practices, respectively. The probable reason might be that farmers play a significance and crucial role in agriculture post-harvest operations which are largely household enterprises. The finding present was in concurrence with the findings of Sahu *et al.* (2015) [3], and Yadav (2017) [7].

**Table 11:** Association between the selected characteristics of farmers and their adoption about grain storage practices

(n=120)		
S. No.	Independent variables	'r' value
<b>I</b>		
<b>Personal Variable</b>		
X <sub>1</sub>	Age	-0.2088*
X <sub>2</sub>	Education	0.2366**
X <sub>3</sub>	Experience in grain storage	0.1841*
<b>II</b>		
<b>Socio-Economic variable</b>		
X <sub>4</sub>	Size of land holding	0.1643 <sup>NS</sup>
X <sub>5</sub>	Social participation	0.1815*
X <sub>6</sub>	Quantity of grain stored	0.1812*
<b>III</b>		
<b>Communicational variable</b>		
X <sub>7</sub>	Mass media exposure	0.2424**
<b>IV</b>		
<b>Psychological variable</b>		
X <sub>8</sub>	Scientific orientation	0.1938*
X <sub>9</sub>	Risk orientation	0.1866*

Critical value at 0.05= 0.1799 and 0.01= 0.2353

\* = Significant at 0.05 level of probability

\*\* = Significant at 0.01 level of probability

NS = Non-significant

The results presented in Table 11 indicate that the characteristics of the respondents *viz*; education and mass media exposure had positive and highly significant relationship with the adoption about grain storage practices. The characteristics of the respondents like experience in grain storage, social participation, quantity of grain stored, scientific orientation and risk orientation were positively and significantly related with adoption about grain storage practices. Size of land holding were positive and non-significant relationship with adoption about grain storage practices. Age was negative and significant relationship with adoption about grain storage practices.

## Conclusion

The magnitude of post-harvest losses at farm level, it is evident that there is a need not only to produce but to preserve the produce by adopting different grains storage practices and minimize the losses during storage. So that results indicates that the majority 65.83 per cent of the respondents were medium level of adoption about grain storage practices. While, 20.00 and 14.17 per cent respondents were low and high level adoption about grain storage practices. Out of twelfth independent variables, education and mass media exposure had positive and highly significant association with adoption of farmers, whereas experience in grain storage, social participation, quantity of grain storage, scientific orientation and risk orientation had positive and significant association, while age had negative and significant association, and size of land holding had positive and non-significant with adoption of farmers about grain storage practices.

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